

What Is Claimed Is:

1. A color liquid crystal display device, comprising:
upper and lower substrates facing and spaced apart from each other;
a liquid crystal layer interposed between the upper and lower substrates and
5 wherein the liquid crystal layer is initially aligned parallel to the substrates;
a polarizer disposed on an outer surface of the upper substrate; and
a reflection plate disposed on an outer surface of the lower substrate;
wherein the liquid crystal layer is re-aligned by an applied voltage and a
transmittance of the liquid crystal layer for a specific wavelength is changed according
10 to a change of an angle between a light axis of the liquid crystal layer and a
transmission axis of the polarizer so that the device can display multiple colors.
2. The color liquid crystal display device according to claim 1, wherein a
gap between the upper and lower substrates has a value in a range between
15 approximately 5 μm to 7.5 μm .
3. The color liquid crystal display device according to claim 1, further
comprising a phase compensation plate interposed between the lower substrate and the
reflection plate.
- 20 4. The color liquid crystal display device according to claim 1, wherein the
liquid crystal layer includes one of a ferroelectric liquid crystal material and an anti-
ferroelectric liquid crystal material.

5. The color liquid crystal display device according to claim 1, wherein the liquid crystal layer is aligned along an electric field parallel to the substrates.

6. The color liquid crystal display device according to claim 1, wherein the
5 reflective plate is an opaque metal.

7. The color liquid crystal display device according to claim 1, wherein the reflective plate is aluminum.

10 8. A liquid crystal display device, comprising:

upper and lower substrates parallel to each other and separated by a predetermined distance, the upper and lower substrates having inner and outer surfaces, respectively, the respective inner surfaces facing each other;.

a pixel electrode over an inner surface of the lower substrate;

15 a common electrode over the inner surface of one of the upper and lower substrates;

a polarizer on the outer surface of the upper substrate, the polarizer having a transmission axis; and

20 a liquid crystal between the inner surfaces of the upper and lower substrates, the liquid crystal having a light axis that corresponds to a voltage between the common and pixel electrodes;

wherein an angle between the light axis and the transmission axis corresponds to voltage between the common and pixel electrodes and is tunable for transmission of a specific wavelength of light.

- 5 9. The liquid crystal display device of claim 8, further comprising:

 a reflection plate on the outer surface of the lower substrate.

10 10. The liquid crystal display device of claim 8, wherein the common
electrode is transparent and is on the inner surface of the upper substrate.

 11. The liquid crystal display device of claim 8, wherein the common
electrode is transparent and is on the inner surface of the lower substrate.

15 12. The liquid crystal display device of claim 8, wherein the liquid crystal
has a pretilt angle of approximately 0° when there is no electric field between the
common and pixel electrodes and has a predetermined angle corresponding to an
applied voltage between the common and pixel electrodes when a voltage is applied
between the common and pixel electrodes.

13. The liquid crystal display device of claim 8, wherein the predetermined distance is in the range of approximately 5 μm to approximately 7.5 μm .

14. The liquid crystal display device of claim 8, wherein the liquid crystal is
5 a ferroelectric liquid crystal.

15. The liquid crystal display device of claim 8, wherein the liquid crystal is
an antiferroelectric liquid crystal.

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